



U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATIONS STATUS CHANGE SUMMARY

Report:	DuPont Corporation Toxic Chemical Releases
Recommendation Number(s):	2010-6-I-WV-R2
Date Issued:	October 17, 2011
Recipient:	Occupational Safety & Health Administration (OSHA)
New Status:	R2: Open – Acceptable Response
Date of Status Change:	March 31, 2015

Recommendation Text:

Take sustained measures to minimize the exposure of hazards to workers handling highly toxic gases from cylinders and associated regulators, gages, hoses, and appliances. Ensure that OSHA managers, compliance officers, equivalent state OSHA plan personnel, and regulated parties conform, under the Process Safety Management Standard (29 CFR 1910.119) Recognized and Generally Accepted Good Engineering Practices (RAGAGEP) provisions, to industry practices at least as effective as the following:

- *NFPA 55 - Compressed Gases and Cryogenic Fluids Code (2010)*
- *CGA P-1 - Safe Handling of Compressed Gases in Containers (2008)*
- *CGA E-9 - Standard for Flexible, PTFE-lined Pigtailed for Compressed Gas Service (2010)*
- *ASME B31.3 - Process Piping (2008)*

Board Status Change Decision:

A. Rationale for Recommendation

On January 22 and 23, 2010, three accidents occurred over a 33-hour period at the DuPont Corporation's Belle, West Virginia chemical manufacturing plant. The series of accidents began when an alarm sounded, leading operators to discover that 2,000 pounds of methyl chloride, a toxic and extremely flammable gas, had been leaking unnoticed into the atmosphere for five days. The next morning, workers discovered a leak in a pipe carrying oleum, which produced a fuming cloud of sulfur trioxide. A release of highly toxic phosgene occurred later that day, exposing a worker who died the following evening in a hospital.

In investigating these three incidents, the CSB found that DuPont was not handling highly toxic gases, such as phosgene, in accordance with the requirements of the following: the National Fire Protection Association's *Compressed Gases and Cryogenics Fluids Code* (NFPA 55), the Compressed Gas Association's *Safe Handling of Compressed Gases in Containers* (CGA P-1) and *Standard for Flexible, PTFE-lined Pigtailed for Compressed Gas Service* (CGA E-9); and the American Society of Mechanical Engineers' *Process Piping* (ASME B31.3) code.

The CSB issued a recommendation to OSHA to ensure that these standards are used and enforced as Recognized and Generally Accepted Good Engineering Practices (RAGAGEP) under the provisions of OSHA's Process Safety Management standard (29 CFR 1910.119) for those facilities that handle highly toxic gases above the specified threshold quantities.

B. Response to the Recommendation

In its February 2012 response, OSHA agreed to provide guidance to both the regulated community and its compliance officers regarding the RAGAGEP for handling highly toxic gases by issuing a memorandum to its Regional Administrators. The memorandum will be posted on OSHA's public website for both the OSHA and regulated communities. The memorandum will discuss the DuPont case, specifically the contributing and root causes and list potentially applicable RAGAGEP, including those suggested by the CSB

C. Board Analysis and Decision

As OSHA's proposed response meets the intent of CSB Recommendation No. 2010-6-I-WV-R2, the Board voted to change its status to: "Open—Acceptable Response." Acceptable closure of this recommendation will hinge upon OSHA's issuance of the guidance and its subsequent posting on its public website.